

REMARKS

Claims 2-4, 7-9, 11-13 and 16-20 are pending. Reconsideration and allowance based on the following remarks are respectfully requested.

Applicants appreciate the Examiner's indication that claims 3-4, 7-9, 12-13 and 16-18 contain allowable subject matter.

**Prior Art Rejection**

The Office Action rejects claims 2, 11, 19 and 20 under 35 U.S.C. §103(a) as being unpatentable over Ando, et al. (U.S. 5,717,641) in view of Chen, et al. (U.S. 6,289,129). This rejection is respectfully traversed.

**Presently Claimed Invention**

Independent claim 2 is directed to a coding device comprising: a coder; a first storing unit; a second storing unit; and a code volume controller. The coder codes an external input signal in a macroblock unit. The first storing unit stores a code output from the coder. The second storing unit stores an output from the first storing unit. The code volume controller controls transfer of the code stored in the first storing unit to the second storing unit based on a code volume of the code obtained by the coder, such that a length of a video packet constituted by the code is a predetermined length or less. The code volume controller controls storage of a stuffing in the second storing unit based on a minimum code volume obtained

for each video object plane (VOP) unit image constituted by a video packet which is required for coding the unit image.

Independent claim 11 is directed to a coding method comprising the steps of: (a) coding an external input signal in a macroblock unit; (b) storing a code obtained at step (a); (c) controlling an output of the code stored at step (b) such that a length of a video packet constituted by the code obtained at the step (a) is a predetermined length or less based on a code volume of the code; and (d) storing the output controlled by the step (c). Step (c) serves to control storage of a stuffing at step (d) based on a minimum code volume obtained for each video object plane (VOP) unit image constituted by a video packet which is required for coding the unit image.

Independent claim 19 is directed to a video signal coding apparatus, comprising: a video coder that codes a video signal as a video packet; a first storage unit operatively connected to the video coder and storing the coded video signal; a second storage unit operatively connected to the first storage unit and storing an output from the first storage unit; and a control volume controller, operatively connected to the video coder, first storage unit and the second storage unit. The control volume controller determines a minimum code volume ( $T_{min}$ ) for each video object plane (VOP) unit image of the video packet and controls a break of the video packet and the insertion of a stuffing such that a code volume  $S_c$  of the VOP is not smaller than the minimum code volume ( $T_{min}$ ).

Independent claim 20 is directed to a method for coding a video signal, comprising: coding the video signal as a video packet, by a video coder; storing the encoded video signal in a first storage unit operatively connected to the video coder; storing an output of the first storage unit in a second storage unit operatively connected to the first storage unit; and determining, by a control volume controller operatively connected to the video coder, first storage unit and the second storage unit, a minimum code volume ( $T_{min}$ ) for each video object plane (VOP) unit image of the video packet and controlling a break of the video packet and the insertion of a stuffing such that a code volume  $Sc$  of the VOP is not smaller than the minimum code volume ( $T_{min}$ ).

Ando

Ando teaches a data storing method in which data is coded at a determined data rate. The coded data is sectioned into packets and supplied to a memory 2. The coder 1 also detects the maximum amount of coded data in each packet and provides this to a control data memory 4. The amount of data of each packet is then supplied to the control circuit 3 via the control data memory 4.

The reading control circuit 5 reads the maximum data rates of the packets. The reading control circuit 5 then determines whether there is a desired output data rate. If there is a desired output data rate, the reading control circuit compares the maximum data rate of the packet with the desired output data rate.

If the desired output data rate is smaller than the maximum data rate, the reading control circuit outputs an "impossible to transmit" response to the output terminal. See column 4, lines 23-33.

If the desired output data rate is equal to or larger than the maximum data rate, the reading control circuit outputs the maximum data rate as the output data rates. See column 4, lines 33-40. Thus, transmission is determined based upon the data rates of the packets.

If necessary, prior to transmission, dummy data is added to the coding data by the dummy data adding circuit 6. Dummy data is only added if the output data rate is equal to or greater than the maximum data rate. The dummy data is added based on the amount of data in each packet from the maximum data rate and the output data rate. Therefore, the dummy data is added to the coded data such that the coding rate per predetermined interval  $t$  is made larger than the fixed data rate greater than the maximum coding data rate. See column 2, lines 50-67 to column 3, lines 1-40 and column 4, lines 47-58. Dummy data is either added at the end of the packet or between sub-packets. See column 4, lines 63-67.

#### Chen

Chen teaches a technique for enabling video data to be broadcast using a push dataflow scenario. Chen's system is designed to allow data to be broadcast

without causing a data rate buffer for the pushed data at a decoder to overflow or underflow. Chen's system uses the MPEG-4 standard, which includes the use of video object planes (VOPs). See column 1, lines 48-67 to column 2, lines 1-30.

#### Deficiencies in the Rejection

Applicants remind the Examiner that in order to establish a *prima facie* case of obviousness three (3) basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations. See MPEP 2143.

The combination of Ando and Chen does not result in applicants' claimed invention. Each of independent claims 2 and 11 recites, *inter alia*, the controlling of a stuffing based on a minimum code volume obtained for each video object plane (VOP) unit image. Independent claims 19 and 20 recite, *inter alia*, determining a minimum code volume (Tmin) for each video object plane (VOP) unit image of the video packet and controlling a break of the video packet and the insertion of a stuffing such that a code volume Sc of the VOP is not smaller than said minimum code volume (Tmin).

Applicants respectfully submit that, even if it would have been obvious to somehow combine VOP's of Chen with the system Ando (which applicants do not admit), the combination would not result in controlling storage of a stuffing based on a minimum code volume obtained for each VOP unit image, as claimed. Ando teaches the adding of dummy data to a packet based on the maximum data rate determined for a series of packets during the coding process. See column 3, lines 60-64. Prior to adding the dummy data, the dummy data adding circuit 6 receives the output data rate and the maximum data rate for the packet. See column 4, lines 46-52. The dummy data is added to the packet such that a fixed data rate is obtained which is equal to or more than the maximum data rate for a predetermined interval for outputting the packets. See column 4, lines 52-58 and column 5, lines 10-16.

In contrast, applicants' claimed invention controls the storage of a stuffing based on a minimum code volume obtained for each VOP unit image.

Also, with reference to independent claims 2, 19, and 20, the Office Action admits that Ando and Chen do not teach the claimed second storing unit, in the context of the claimed invention. The Office Action, however, alleges (invoking "official notice") that the second storing unit would be obvious in a receiver of Ando. Specifically, the Office Action states, "it would be obvious to one skilled in the art at the time of the invention that a video receiver would contain an input buffer. It would have been obvious to one skilled in the art at the time of the

invention that the buffer of the video receiver would be the second storing means in the system.”

In claims 2, 19, and 20, however, it is clear that the second storing unit is part of the coding device/apparatus, not on the receiver end. Therefore, accepting for argument sakes the Examiner’s conclusion that a receiver in the Ando system would include an input buffer that is a “second storing unit,” Ando does not teach or suggest the claimed interaction between the first and second storing units and code volume controller in a coding device/apparatus as claimed.

Finally, applicants respectfully submit that there is no motivation to combine the teachings of Chen and Ando. It appears from the Office Action that the sole purpose of combining Chen with Ando is to provide the teaching of VOP’s. Ando makes no suggestion, nor does Ando provide a teaching, of using VOP’s in any manner, let alone as claimed by applicants. Further, Chen provides no teaching or suggestion of using a VOP in a system of the type set forth in Ando. Certainly, nothing within Ando or Chen suggests or motivates the modification of Ando’s system to incorporate VOP’s.

For at least the above reasons, *prima facie* obviousness has not been established. Therefore, the rejection under 35 U.S.C. § 103 is improper. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested

Conclusion

Applicants respectfully submit that combination of Ando and Chen fail to establish a proper *prima facie* case of obviousness. Therefore, it is respectfully submitted that claims 2, 11, 19 and 20 are distinguishable over the cited art. Favorable consideration and prompt allowance are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings (Reg. No. 48,917) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.



If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s)